

What is claimed is:

1. An isolated phosphatidylserine receptor protein selected from the group consisting of:
 - a. a protein consisting essentially an amino acid sequence selected from the group consisting of:
 - i. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:3 to about position 414 of SEQ ID NO:3;
 - ii. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:5 to about position 403 of SEQ ID NO:5;
 - iii. an amino acid sequence spanning from between about positions 206 and 243 of SEQ ID NO:7 to about position 349 of SEQ ID NO:7; and,
 - iv. an amino acid sequence spanning from between about positions 257 and 294 of SEQ ID NO:9 to about position 408 of SEQ ID NO:9; and,
 - b. a homologue of the protein of (a), wherein said homologue consists essentially of an amino acid sequence that is at least about 70% identical to said amino acid sequence of (a);

wherein said isolated phosphatidylserine receptor protein has a phosphatidylserine receptor biological activity.
2. The isolated phosphatidylserine receptor protein of Claim 1, wherein said protein consists essentially of an amino acid sequence selected from the group consisting of:
 - a. an amino acid sequence spanning from between about positions 289 of SEQ ID NO:3 to position 414 of SEQ ID NO:3;
 - b. an amino acid sequence spanning from between about positions 289 of SEQ ID NO:5 to position 403 of SEQ ID NO:5;

- c. an amino acid sequence spanning from between about positions 243 of SEQ ID NO:7 to position 349 of SEQ ID NO:7; and
 - d. an amino acid sequence spanning from between about positions 294 of SEQ ID NO:9 to position 408 of SEQ ID NO:9.
- 3. The isolated phosphatidylserine receptor protein of Claim 1, wherein said homologue is at least about 80% identical to said amino acid sequence of (a).
 - 4. The isolated phosphatidylserine receptor protein of Claim 1, wherein said homologue is at least about 90% identical to said amino acid sequence of (a).
 - 5. The isolated phosphatidylserine receptor protein of Claim 1, wherein said protein of (a) consists essentially of an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:3 to about position 414 of SEQ ID NO:3.
 - 6. The isolated phosphatidylserine receptor protein of Claim 1, wherein said protein of (a) consists essentially of an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:5 to about position 403 of SEQ ID NO:3.
 - 7. A fusion protein comprising the protein of Claim 1 operatively linked to a heterologous protein sequence.
 - 8. An isolated antibody that selectively binds to a protein of Claim 1.
 - 9. The isolated antibody of Claim 8, wherein said antibody selectively binds to a protein consisting essentially of a fragment of SEQ ID NO:3 spanning from between about positions 252 and 289 of SEQ ID NO:3 and about position 414 of SEQ ID NO:3.
 - 10. The isolated antibody of Claim 8, wherein said antibody selectively binds to a protein consisting essentially of a fragment of SEQ ID NO:5 spanning from between about positions 252 and 289 of SEQ ID NO:5 and about position 403 of SEQ ID NO:5.
 - 11. An isolated antigen binding fragment that selectively binds to the protein of Claim 1.
 - 12. The isolated antigen binding fragment of Claim 11, wherein said antigen binding fragment selectively binds to a protein consisting essentially of a fragment of SEQ

ID NO:3 spanning from between about positions 252 and 289 of SEQ ID NO:3 and about position 414 of SEQ ID NO:3.

13. The isolated antigen binding fragment of Claim 11, wherein said antigen binding fragment selectively binds to a protein consisting essentially of a fragment of SEQ ID NO:5 spanning from between about positions 252 and 289 of SEQ ID NO:5 and about position 403 of SEQ ID NO:5.

14. A binding partner that selectively binds to the protein of Claim 1.

15. The binding partner of Claim 14, wherein said binding partner selectively binds to a protein consisting essentially of a fragment of SEQ ID NO:3 spanning from between about positions 252 and 289 of SEQ ID NO:3 and about position 414 of SEQ ID NO:3.

16. The binding partner of Claim 14, wherein said binding partner selectively binds to a protein consisting essentially of a fragment of SEQ ID NO:5 spanning from between about positions 252 and 289 of SEQ ID NO:5 and about position 403 of SEQ ID NO:5.

17. A composition comprising at least about 1 μ g of an isolated phosphatidylserine receptor protein selected from the group consisting of:

a. a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9;

b. a homologue of the protein of (a), wherein said homologue comprises an amino acid sequence that is at least 316 amino acid residues in length and that is at least about 70% identical to said amino acid sequence of (a);

c. a fragment of the protein of (a) consisting essentially an amino acid sequence selected from the group consisting of:

i. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:3 to about position 414 of SEQ ID NO:3;

ii. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:5 to about position 403 of SEQ ID NO:5;

iii. an amino acid sequence spanning from between about positions 206 and 243 of SEQ ID NO:7 to about position 349 of SEQ ID NO:7; and,

iv. an amino acid sequence spanning from between about positions 257 and 294 of SEQ ID NO:9 to about position 408 of SEQ ID NO:9 spanning from between about positions 252 and 289 of SEQ ID NO:3 and about position 414 of SEQ ID NO:3; and

d. a homologue of the protein of (c), wherein said wherein said homologue consists essentially of an amino acid sequence that is at least about 70% identical to said amino acid sequence of (c);

wherein said isolated phosphatidylserine receptor protein has a phosphatidylserine receptor biological activity.

18. The composition of Claim 17, wherein said protein consists essentially of an amino acid sequence selected from the group consisting of a fragment of at least about 316 amino acids of SEQ ID NO:3, and a fragment of SEQ ID NO:3 spanning from between positions 252 and 289 of SEQ ID NO:3 and position 414 of SEQ ID NO:3, wherein said protein has a phosphatidylserine biological activity.

19. The composition of Claim 17, wherein said homologue of (b) is at least about 80% identical to SEQ ID NO:3.

20. The composition of Claim 17, wherein said homologue of (b) is at least about 90% identical to SEQ ID NO:3.

21. The composition of Claim 17, wherein said homologue of (b) comprises at least about 25 contiguous amino acid residues of SEQ ID NO:3.

22. The composition of Claim 17, wherein said homologue of (b) comprises at least about 100 contiguous amino acid residues of SEQ ID NO:3.

23. The composition of Claim 17, wherein said protein comprises SEQ ID NO:3.

24. An isolated phosphatidylserine receptor protein selected from the group consisting of:

a. a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9; and,

b. a homologue of the protein of (a), wherein said homologue comprises an amino acid sequence that is at least 316 amino acid residues in length and that is at least about 70% identical to said amino acid sequence of (a), wherein said homologue is not SEQ ID NO:3;

wherein said isolated phosphatidylserine receptor protein has a phosphatidylserine receptor biological activity.

25. The isolated phosphatidylserine receptor of Claim 24, wherein said protein is selected from the group consisting of: SEQ ID NO:5 and a homologue of SEQ ID NO:5, wherein said homologue comprises an amino acid sequence that is at least 316 amino acid residues in length and that is at least about 70% identical to SEQ ID NO:5.

26. The isolated phosphatidylserine receptor protein of Claim 24, wherein said protein comprises an amino acid sequence selected from the group consisting of SEQ ID NO:5 and a fragment of at least about 316 amino acids of SEQ ID NO:5.

27. The isolated phosphatidylserine receptor protein of Claim 24, wherein said protein comprises an amino acid sequence selected from the group consisting of SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

28. The isolated phosphatidylserine receptor protein of Claim 24, wherein said protein of (a) comprises SEQ ID NO:5.

29. The isolated phosphatidylserine receptor protein of Claim 24, wherein said protein of (a) comprises SEQ ID NO:7.

30. The isolated phosphatidylserine receptor protein of Claim 24, wherein said protein of (a) comprises SEQ ID NO:9.

31. The isolated phosphatidylserine receptor protein of Claim 24, wherein said homologue of (b) is at least about 80% identical to said amino acid sequence of (a).

32. The isolated phosphatidylserine receptor protein of Claim 24, wherein said homologue of (b) is at least about 90% identical to said amino acid sequence of (a).

33. The isolated phosphatidylserine receptor protein of Claim 24, wherein said homologue of (b) comprises at least about 25 contiguous amino acid residues of said amino acid sequence of (a).

34. The isolated phosphatidylserine receptor protein of Claim 24, wherein said homologue of (b) comprises at least about 100 contiguous amino acid residues of said amino acid sequence of (a).

35. The isolated phosphatidylserine receptor protein of Claim 24, wherein said receptor protein is a soluble phosphatidylserine receptor.

36. A fusion protein comprising the protein of Claim 24 operatively linked to a heterologous protein sequence.

37. An isolated antibody that selectively binds to the protein of Claim 24.

38. The isolated antibody of Claim 37, wherein said antibody selectively binds to a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

39. An isolated antigen binding fragment that selectively binds to the protein of Claim 24.

40. The isolated antigen binding fragment of Claim 39, wherein said antigen binding fragment selectively binds to a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

41. A binding partner that selectively binds to the protein of Claim 24.

42. The binding partner of Claim 41, wherein said binding partner selectively binds to a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

43. An isolated phosphatidylserine receptor homologue, wherein said homologue comprises an amino acid sequence that is:

- a. at least 316 amino acids in length;
- b. at least about 70% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9; and,
- c. less than 100% identical to said amino acid sequence of (a);

wherein said homologue is not SEQ ID NO:3;

wherein said isolated phosphatidylserine receptor homologue has a phosphatidylserine receptor biological activity.

44. The isolated phosphatidylserine receptor homologue of Claim 43, wherein said amino acid sequence of said homologue differs from said amino acid sequence of (a) by at least one modification selected from the group consisting of an amino acid deletion, an amino acid insertion, and an amino acid substitution.

45. The isolated phosphatidylserine receptor homologue of Claim 43, wherein said homologue is less than about 95% identical to said amino acid sequence of (a).

46. The isolated phosphatidylserine receptor homologue of Claim 43, wherein said homologue is at least about 80% identical to an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

47. The isolated phosphatidylserine receptor homologue of Claim 43, wherein said homologue is at least about 90% identical to identical to an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

48. An isolated cDNA or RNA molecule selected from the group consisting of:
- a. a nucleic acid sequence consisting essentially of nucleotides encoding an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9;
 - b. a nucleic acid sequence encoding a homologue of the protein of (a), wherein said homologue comprises an amino acid sequence that is between 316 and 414 amino acid residues in length and that is at least about 70% identical to said amino acid sequence of (a);
 - c. a nucleic acid sequence encoding a protein consisting essentially of a fragment of said amino acid sequence of (a) selected from the group consisting of:
 - i. a fragment spanning from between about positions 252 and 289 of SEQ ID NO:3 to about position 414 of SEQ ID NO:3;
 - ii. a fragment spanning from between about positions 252 and 289 of SEQ ID NO:5 to about position 403 of SEQ ID NO:5;
 - iii. a fragment spanning from between about positions 206 and 243 of SEQ ID NO:7 to about position 349 of SEQ ID NO:7; and
 - iv. a fragment spanning from between about positions 257 and 294 of SEQ ID NO:9 to about position 408 of SEQ ID NO:9;
 - d. a nucleic acid sequence encoding a homologue of the protein of (c), wherein said wherein said homologue consists essentially of an amino acid sequence that is at least about 70% identical to said amino acid sequence of (c); and
 - e. a nucleic acid sequence that is fully complementary to said nucleic acid sequence of (a), (b), (c) or (d).

49. The isolated cDNA or RNA molecule of Claim 48, wherein said nucleic acid sequence is selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6 and SEQ ID NO:8.

50. The isolated cDNA or RNA molecule of Claim 48, wherein said nucleic acid sequence is SEQ ID NO:2.

51. The isolated cDNA or RNA molecule of Claim 48, wherein said nucleic acid sequence consists essentially of from between nucleotide 756 and nucleotide 867 of SEQ ID NO:2 to nucleotide 1242 of SEQ ID NO:2.

52. A recombinant nucleic acid molecule consisting of the isolated cDNA or RNA molecule of Claim 48 and a nucleic acid sequence that is heterologous to said isolated cDNA or RNA molecule.

53. The recombinant nucleic acid molecule of Claim 52, wherein said heterologous nucleic acid sequence is an expression vector.

54. A recombinant cell that expresses said recombinant nucleic acid molecule of Claim 52.

55. An isolated cDNA or RNA molecule selected from the group consisting of:
- a. a nucleic acid sequence encoding a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9;
 - b. a nucleic acid sequence encoding a homologue of the protein of (a), wherein said homologue comprises an amino acid sequence that is at least 316 amino acid residues in length and that is at least about 70% identical to said amino acid sequence of (a), wherein said homologue is not SEQ ID NO:3;
 - c. a nucleic acid sequence encoding a protein consisting essentially of a fragment of said amino acid sequence of (a) selected from the group consisting of:
 - i. a fragment spanning from between about positions 252 and 289 of SEQ ID NO:5 to position 403 of SEQ ID NO:5;
 - ii. a fragment spanning from between about positions 206 and 243 of SEQ ID NO:7 to position 349 of SEQ ID NO:7; and,
 - iii. a fragment spanning from between about positions 257 and 294 of SEQ ID NO:9 to position 408 of SEQ ID NO:9;
 - d. a nucleic acid sequence encoding a homologue of the protein of (c), wherein said homologue consists essentially of an amino acid sequence that is at least about 70% identical to said amino acid sequence of (c); and
 - e. a nucleic acid sequence that is fully complementary to said nucleic acid sequence of (a), (b), (c) or (d).
56. The isolated cDNA or RNA molecule of Claim 55, wherein said nucleic acid sequence is selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6 and SEQ ID NO:8.
57. The isolated cDNA or RNA molecule of Claim 55, wherein said nucleic acid sequence comprises SEQ ID NO:4.

58. The isolated cDNA or RNA molecule of Claim 55, wherein said nucleic acid sequence consists essentially of from between nucleotide 756 and nucleotide 867 of SEQ ID NO:4 to nucleotide 1209 of SEQ ID NO:4.

59. A recombinant nucleic acid molecule comprising the isolated cDNA or RNA molecule of Claim 55 and a nucleic acid sequence that is heterologous to said isolated cDNA or RNA molecule.

60. The recombinant nucleic acid molecule of Claim 59, wherein said heterologous nucleic acid sequence is an expression vector.

61. A recombinant cell that expresses said recombinant nucleic acid molecule of Claim 59.

62. A method to identify a regulator of a phosphatidylserine receptor, comprising:
a. contacting a phosphatidylserine receptor protein with a putative regulatory compound, wherein said phosphatidylserine receptor protein is selected from the group consisting of:

i. a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9;

ii. a homologue of the protein of (a), wherein said homologue comprises an amino acid sequence that is at least 316 amino acid residues in length and that is at least about 70% identical to said amino acid sequence of (a);

iii. a protein consisting essentially of a fragment of said amino acid sequence of (a) selected from the group consisting of:

(1) a fragment spanning from between about positions 252 and 289 of SEQ ID NO:3 to position 414 of SEQ ID NO:3;

(2) a fragment spanning from between about positions 252 and 289 of SEQ ID NO:5 to position 403 of SEQ ID NO:5;

(3) a fragment spanning from between about positions 206 and 243 of SEQ ID NO:7 to position 349 of SEQ ID NO:7; and,

(4) a fragment spanning from between about positions 257 and 294 of SEQ ID NO:9 to position 408 of SEQ ID NO:9; and,

iv. a homologue of the protein of (iii), wherein said homologue comprises an amino acid sequence that is at least about 70% identical to said amino acid sequence of (iii);

wherein said phosphatidylserine receptor protein has a phosphatidylserine receptor biological activity;

b. detecting whether said putative regulatory compound binds to said receptor; and,

c. detecting whether said putative regulatory compound increases or decreases activity of the receptor as compared to prior to contact with said compound;

wherein compounds that bind to said receptor and increase or decrease activity of the receptor, as compared to a receptor in the absence of said compound, indicates that said putative regulatory compound is a regulator of said phosphatidylserine receptor.

63. The method of Claim 62, wherein said step of detecting whether said putative regulatory compound increases or decreases activation of the receptor comprises the steps of contacting said receptor with a stimulator of said receptor and detecting whether activation of said receptor is increased or decreased in the presence of said putative regulatory compound as compared to in the absence of said putative regulatory compound.

64. The method of Claim 62, wherein said method further comprises a step of detecting whether said putative regulatory compound regulates a biological activity of a cell that expresses the receptor, said biological activity being selected from the group consisting of transforming growth factor β (TGF β) production, prostaglandin E2 (PGE2) production, tumor necrosis factor α (TNF α) production, chemokine production, granulocyte-macrophage colony stimulating factor (GM-CSF) production, interleukin-1 (IL-1) production, phosphorylation of the receptor, and phagocytosis of apoptotic cells.

65. A method to stimulate or increase the activity of a phosphatidylserine receptor, comprising contacting a phosphatidylserine receptor with an agonist of said phosphatidylserine receptor, wherein said agonist increases the activity of said phosphatidylserine receptor, and wherein said receptor comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

66. The method of Claim 65, wherein said agonist is selected from the group consisting of: an antibody that selectively binds to and activates said phosphatidylserine receptor, an antigen binding fragment that selectively binds to and activates said phosphatidylserine receptor, a binding partner that selectively binds to and activates said phosphatidylserine receptor, phosphatidylserine, and a product of drug design that increases the activity of said receptor as compared to in the absence of said product.

67. The method of Claim 65, wherein said agonist is an antibody that selectively binds to and activates said receptor.

68. The method of Claim 65, wherein said agonist increases production of a factor selected from the group consisting of transforming growth factor β (TGF β) and prostaglandin E2 (PGE2) by cells in said subject.

69. The method of Claim 65, wherein said agonist decreases production of a factor selected from the group consisting of tumor necrosis factor α (TNF α), a chemokine, granulocyte-macrophage colony stimulating factor (GM-CSF), and interleukin-1 (IL-1) by in said subject.

70. The method of Claim 65, wherein said phosphatidylserine receptor is expressed by a cell selected from the group consisting of a macrophage, a fibroblast, a dendritic cell, a tumor cell, an epithelial cell and an endothelial cell.

71. The method of Claim 65, wherein said agonist reduces inflammation in a patient.

72. A method to reduce the production of inflammatory cytokines by cells in a subject, comprising contacting said cells that express a phosphatidylserine receptor with an agonist of a phosphatidylserine receptor, wherein said agonist increases the activity of a phosphatidylserine receptor, and wherein said receptor comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

73. A method to promote survival of a transplanted cell or graft, comprising administering to a transplant recipient an agonist of a phosphatidylserine receptor, wherein said agonist increases the activity of a phosphatidylserine receptor, and wherein said receptor comprises an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

74. A method to treat an autoimmune disease, comprising administering to a subject that has an autoimmune disease an agonist of a phosphatidylserine receptor, wherein said agonist increases the activity of a phosphatidylserine receptor, and wherein said receptor comprises an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

74. A method to treat an autoimmune disease, comprising administering to a subject that has an autoimmune disease an agonist of a phosphatidylserine receptor, wherein said agonist increases the activity of a phosphatidylserine receptor, and wherein said receptor comprises an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

75. A method to reduce the activity of a phosphatidylserine receptor, comprising contacting a phosphatidylserine receptor with an antagonist of said phosphatidylserine receptor, wherein said antagonist decreases the activity of said phosphatidylserine receptor, and wherein said receptor comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

76. The method of Claim 75, wherein said antagonist is selected from the group consisting of an antibody that reduces the activity of said receptor, an antigen binding fragment that reduces the activity of said receptor, a binding partner that reduces the activity of said receptor, a product of drug design that reduces the biological activity of said receptor, an anti-sense nucleic acid molecule that binds to a nucleic acid molecule encoding the receptor, a ribozyme that is specific for PS receptor RNA, and a soluble phosphatidylserine receptor.

77. The method of Claim 75, wherein said antagonist is an antibody that selectively binds to said receptor and reduces the activity of said receptor.

78. The method of Claim 75, wherein said antagonist is a soluble phosphatidylserine receptor comprising an amino acid sequence selected from the group consisting of:

- a. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:3 to position 414 of SEQ ID NO:3;
- b. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:5 to position 403 of SEQ ID NO:5;
- c. an amino acid sequence spanning from between about positions 206 and 243 of SEQ ID NO:7 to position 349 of SEQ ID NO:7; and,
- d. an amino acid sequence spanning from between about positions 257 and 294 of SEQ ID NO:9 to position 408 of SEQ ID NO:9; and,
- e. an amino acid sequence that is a homologue of the amino acid sequence of (a), (b), (c), or (d), wherein said homologue amino acid

sequence consists essentially of an amino acid sequence that is at least about 70% identical to said amino acid sequence of (a), (b), (c), or (d);

wherein said homologue has a phosphatidylserine receptor biological activity.

79. A method to reduce the association of an apoptotic tumor cell with a phosphatidylserine receptor expressed on the surface of bystander tumor cells, macrophages or dendritic cells, comprising contacting tumor cells of a patient with an antagonist of a phosphatidylserine receptor, wherein said antagonist decreases the activity of said phosphatidylserine receptor, and wherein said phosphatidylserine receptor comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

80. A method to inhibit the infection of a host cell by a parasite, comprising contacting said host cell with an antagonist of a phosphatidylserine receptor, wherein said antagonist decreases the activity of said phosphatidylserine receptor, and wherein said phosphatidylserine receptor comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

81. The method of Claim 80, wherein said parasite is selected from the group consisting of Trypanosomes and Leishmania.

82. A method to inhibit viral infection of host cells, comprising contacting said host cell with an antagonist of a phosphatidylserine receptor, wherein said antagonist decreases the activity of said phosphatidylserine receptor, and wherein said phosphatidylserine receptor comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.

83. The method of Claim 82, wherein said viral infection is by a Herpes virus.

84. The method of Claim 82, wherein said viral infection is by a cytomegalovirus.

85. An isolated phosphatidylserine receptor protein comprising an amino acid sequence that aligns with 100% identity at least 50% of the non-Xaa residues of SEQ ID NO:10, wherein said protein is not SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, or SEQ ID NO:9.

86. A composition comprising an isolated phosphatidylserine receptor protein selected from the group consisting of:

a. a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9;

b. a homologue of the protein of (a), wherein said homologue comprises an amino acid sequence that is at least 316 amino acid residues in length and that is at least about 70% identical to said amino acid sequence of (a);

c. a fragment of the protein of (a) consisting essentially an amino acid sequence selected from the group consisting of:

i. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:3 to about position 414 of SEQ ID NO:3;

ii. an amino acid sequence spanning from between about positions 252 and 289 of SEQ ID NO:5 to about position 403 of SEQ ID NO:5;

iii. an amino acid sequence spanning from between about positions 206 and 243 of SEQ ID NO:7 to about position 349 of SEQ ID NO:7;

iv. an amino acid sequence spanning from between about positions 257 and 294 of SEQ ID NO:9 to about position 408 of SEQ ID NO:9 spanning from between about positions 252 and 289 of SEQ ID NO:3 and about position 414 of SEQ ID NO:3; and

d. a homologue of the protein of (c), wherein said wherein said homologue consists essentially of an amino acid sequence that is at least about 70% identical to said amino acid sequence of (c);

wherein said isolated, substantially purified phosphatidylserine receptor protein has a phosphatidylserine receptor biological activity; and

wherein at least about 80% weight/weight of total protein in said composition is said isolated phosphatidylserine receptor protein.

87. The composition of Claim 86, wherein said phosphatidylserine receptor protein comprises an amino acid sequence selected from the group consisting of: SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, and SEQ ID NO:9.